I claim:

1. A dispersion comprising copolymer particles dispersed in a dispersion medium, wherein said polymer particles each contain greater than 1 living radicals in each polymer particle, and wherein said dispersion contains no chemical capping agents and organic solvent is not required to cause polymer precipitation.
2. The dispersion of claim 1 wherein said polymer particles each contain on average greater than 3 living radicals in each polymer particle.
3. The dispersion of claim 2 wherein said polymer particles each contain on average greater than 5 living radicals in each polymer particle.
4. The dispersion of claim 3 wherein said polymer particles each contain on average greater than 20 living radicals in each polymer particle.
5. The dispersion of claim 4 wherein said polymer particles each contain on average greater than 100 living radicals in each polymer particle.
6. The dispersion of claim 5 wherein said polymer particles each contain on average greater than 1000 living radicals in each polymer particle.
7. The dispersion of claim 1 wherein said polymer particles have an average particle size of from 10 to 10,000 nanometers.
8. The dispersion of claim 7 wherein said polymer particles have an average particle size of from 10 to 1000 nanometers.
9. The dispersion of claim 8 wherein said polymer particles have an average particle size of from ~~20~~ to 400 nanometers.
10. The dispersion of claim 1 wherein said polymer particles have a unimodal or multimodal

particle size distribution.

11. The dispersion of claim 1 wherein said dispersion medium comprises water.

12. The dispersion of claim 1 wherein said dispersion further contains an organic diluent.

13. The dispersion of claim 1 wherein said polymer particles comprise block polymers.

14. The dispersion of claim 1 wherein said polymer particles comprise tapered block copolymers.

15. A process for producing a polymer having a controlled architecture comprising:

a) forming a first stage stable dispersion by polymerizing one or more monomers in a dispersion medium using a source of free radicals to initiate polymerization and optionally using a surfactant, stabilizer, or dispersant to stabilize the polymer dispersion and without using a chemical polymerization control agent or capping agent wherein said particles contain an average of more than one living radical per particle; and

b) adding additional monomer to the first stage dispersion to extend the pre-existing polymer chains by reaction of the additional monomer with the living radicals created in step (a)

16. The process of claim 15 wherein said dispersing medium is water.

17. The process of claim 15 wherein said first stage dispersion is formed by regulating said particle size, monomer and/or solvent concentration within said particle.

18. The process of claim 15 wherein said free radical generating agent is a water-soluble initiator.

19. The process of claim 15 further comprising adding, following step (b), at least one additional monomer to said dispersion polymer having living, trapped radicals.

20. The process of claim 15 wherein the additional monomer in step (b) comprises the same monomer as in the first stage polymerization.

21. The process of claim 15 wherein the additional monomer in step (b) comprises at least one monomer which is different than the first stage monomer, resulting in a block copolymer.

22. The process of claim 15 wherein said dispersion medium (a) is a an admixture of two or more liquids.

23. The process of claim 15 wherein said stabilizer is a colloid.

24. The process of claim 15 wherein said surfactant is a non-ionic surfactant.

25. The process of claim 15 wherein said block copolymer is a pure block copolymer.

26. The process of claim 15 wherein said first stage monomer and said second stage monomer comprise at least one hydrophobic monomer and at least one hydrophilic monomer.

27. A block copolymer dispersion wherein said dispersion contains no chemical capping agents or organic solvent.

28. An adhesive, coating or encapsulant comprising the block copolymer of claim 27.